

CLAIMS:

1. A device (200) for measuring a white chromaticity of a color monitor (100), having a function of displaying color images using the three primary colors of R, G, and B, the white chromaticity measuring device for color monitor comprising:

5 a tone value storage means (220), storing a combination of tone values of the three primary colors R, G, and B;

10 a test pattern display means (210), displaying a test pattern (T) on a screen of a color monitor based on the tone values of the three primary colors R, G, and B that are stored in the tone value storage means;

15 a tone value varying means (240), performing a varying operation of varying, with time and in accordance with prescribed rules that are determined in advance, the tone values stored in the tone value storage means;

20 a comparison result entering means (230), inputting, from an operator viewing the test pattern displayed on the screen of the color monitor in a state in which the varying operation by the tone value varying means is being performed, a comparison result, for which a color of a “reference body indicating white that serves as a reference” (Q) that is positioned near the test pattern and a color of the test pattern are the objects of comparison; and

25 a measurement result output means (250), outputting, as a measurement result indicating the white chromaticity of the color monitor under a present illumination environment and based on the reference body, the combination of the tone values of the three primary colors R, G, and B that are stored in the tone value storage means at a point at which a comparison result, indicating that the objects of comparison are matched, is input into the comparison result entering means.

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2. The measuring device according to Claim 1, wherein

35 the tone value varying means (240) has a function of starting and stopping, in accordance with variation instructions provided from an operator, a varying operation of adding or subtracting a prescribed variation amount to or from a tone value of a prescribed primary color in a prescribed period.

3. The measuring device according to Claim 1 or 2, wherein
the tone value varying means (240) keeps a tone value of the primary
color R, among the three primary colors R, G, and B, fixed always at a
maximum tone value and carries out the varying operations only on tone
values of the primary color G and the primary color B.

4. The measuring device according to any of Claims 1 through 3,
wherein
10 the tone value varying means (240) has a function of performing a
varying operation of adding or subtracting a prescribed variation amount to
or from a tone value of a specific primary color to be varied in a prescribed
period and switching the specific primary color to be subject to variation in
accordance with the comparison result input into the comparison result
15 entering means (230).

5. The measuring device according to Claims 1, wherein
the tone value varying means (240) is provided with a function of
selectively performing a green varying operation of adding or subtracting a
20 prescribed variation amount to or from a tone value of the primary color G
in a prescribed period and a blue varying operation of adding or subtracting a
prescribed variation amount to or from a tone value of the primary color B
in a prescribed period, and

the comparison result entering means (230) is provided with a
25 function of inputting, from an operator, a green approximation signal,
indicating that the color of the reference body and the color of the test
pattern have become closest to each other, in a state in which the tone value
varying means is performing the green varying operation, and a blue
approximation signal, indicating that the color of the reference body and the
30 color of the test pattern have become closest to each other, in a state in
which the tone value varying means is performing the blue varying
operation, and deeming that a comparison result, indicating that the objects
of comparison are matched, has been input when both the green
approximation signal and the blue approximation signal are input.

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6. The measuring device according to Claim 5, wherein

in performing the varying operation, a variation range of a tone value is set, and the tone value is varied cyclically within the variation range in a manner such that when the tone value obtained by the varying operation of adding the variation amount exceeds a maximum tone value of the variation range, a cyclic operation of incrementing from a minimum tone value side of the variation range is performed, and when the tone value obtained by the varying operation of subtracting the variation amount falls below the minimum tone value of the variation range, a cyclic operation of decrementing from the maximum tone value side of the variation range is performed.

7. The measuring device according to Claim 5, wherein
in performing the varying operation, a variation range of a tone value is set, and the tone value is varied reciprocatingly within the variation range in a manner such that when the tone value obtained by the varying operation of adding the variation amount exceeds a maximum tone value of the variation range, a fold-back operation of switching to the varying operation of subtracting the variation amount from the maximum tone value side is performed, and when the tone value obtained by the varying operation of subtracting the variation amount falls below a minimum tone value of the variation range, a fold-back operation of switching to the varying operation of adding the variation amount from the minimum tone value side is performed.

25 8. The measuring device according to Claim 6 or 7, wherein
the tone value varying means (240) is provided with a function of starting the blue varying operation when the green approximation signal is input in a state in which the green varying operation is being performed, starting the green varying operation when the blue approximation signal is input in a state in which the blue varying operation is being performed, and repeatedly executing the green varying operation and the blue varying operation alternatingly and a function of repeatedly executing the operations while gradually reducing the tone value variation amount and the variation range, and
35 the comparison result entering means (230) is provided with a function of deeming that a comparison result indicating that the objects of

comparison are matched is input when inputs of both the green approximation signal and the blue approximation signal are completed after the variation amount has reached a predefined value.

- 5 9. The measuring device according to Claim 1, wherein
the tone value varying means (240) is provided with a function of
selectively performing a red/green varying operation, in which a prescribed
variation amount is added or subtracted to or from a tone value of the
primary color R in a prescribed period or a prescribed variation amount is
10 added or subtracted to or from a tone value of the primary color G in a
prescribed period, and a yellow/blue varying operation, in which a
prescribed variation amount of the same value is added or subtracted to or
from a tone value of the primary color R and a tone value of the primary
color G simultaneously in a prescribed period or a prescribed variation
15 amount is added or subtracted to or from a tone value of the primary color B
in a prescribed period, and

the comparison result entering means (230) is provided with a
function of inputting, from an operator, a red/green approximation signal,
indicating that the color of the reference body and the color of the test
20 pattern have become closest to each other, in a state in which the tone value
varying means is performing the red/green varying operation, and a
yellow/blue approximation signal, indicating that the color of the reference
body and the color of the test pattern have become closest to each other, in a
state in which the tone value varying means is performing the yellow/blue
25 varying operation, and deeming that a comparison result, indicating that
the objects of comparison are matched, has been input when both the
red/green approximation signal and the yellow/blue approximation signal
are input.

- 30 10. The measuring device according to Claim 9, wherein
in performing the red/green varying operation, a first operation of
varying the tone value of the primary color R and a second operation of
varying the tone value of the primary color G are alternatingly executed
repeatedly, and
35 in performing the yellow/blue varying operation, a third operation of
varying the tone values of the primary color R and the primary color G and

a fourth operation of varying the tone value of the primary color B are alternately executed repeatedly.

11. The measuring device according to Claim 9 or 10, wherein

5 in performing the varying operation, a variation range of a tone value is set, and the tone value is varied cyclically within the variation range in a manner such that when the tone value obtained by the varying operation of adding the variation amount exceeds a maximum tone value of the variation range (in the case where the primary color R and the primary
10 color G are varied simultaneously, when a tone value of at least one of the primary color R and the primary color G exceeds the maximum tone value), a cyclic operation of incrementing from a minimum tone value side of the variation range is performed (in the case where the primary color R and the primary color G are varied simultaneously, a process of cycling a smaller of
15 the tone value of the primary color R and the tone value of the primary color G to the minimum tone value side and a process of keeping a difference between the two tone values fixed are performed), and when a tone value obtained by the varying operation of subtracting the variation amount falls below the minimum tone value of the variation range (in the case where the primary color R and the primary color G are varied simultaneously, when a tone value of at least one of the primary color R and the primary color G falls below the minimum tone value), a cyclic operation of decrementing from the maximum tone value side of the variation range is performed (in
20 the case where the primary color R and the primary color G are varied simultaneously, a process of cycling a larger of the tone value of the primary color R and the tone value of the primary color G to the maximum tone value side and a process of keeping a difference between the two tone values fixed are performed).
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30 12. The measuring device according to Claim 9 or 10, wherein

 in performing the varying operation, a variation range of a tone value is set, and the tone value is varied reciprocatingly within the variation range in a manner such that when the tone value obtained by the varying operation of adding the variation amount exceeds a maximum tone value of the variation range (in the case where the primary color R and the primary color G are varied simultaneously, when a tone value of at least one of the

primary color R and the primary color G exceeds the maximum tone value),
a fold-back operation of switching to the varying operation of subtracting
the variation amount from the maximum tone value side is performed, and
when a tone value obtained by the varying operation of subtracting the
variation amount falls below a minimum tone value of the variation range
5 (in the case where the primary color R and the primary color G are varied
simultaneously, when a tone value of at least one of the primary color R and
the primary color G falls below the minimum tone value), a fold-back
operation of switching to the varying operation of adding the variation
10 amount from the minimum tone value side is performed.

13. The measuring device according to any of Claims 10 through 12,
wherein

the tone value varying means (240) is provided with a function of
15 starting the yellow/blue varying operation when the red/green
approximation signal is input in a state in which the red/green varying
operation is being performed, starting the red/green varying operation when
the yellow/blue approximation signal is input in a state in which the
yellow/blue varying operation is being performed, and repeatedly executing
20 the red/green varying operation and the yellow/blue varying operation
alternatingly and a function of repeatedly executing the operations while
gradually reducing the tone value variation amount and the variation range,
and

the comparison result entering means (230) is provided with a
25 function of deeming that a comparison result indicating that the objects of
comparison are matched is input when inputs of both the red/green
approximation signal and the yellow/blue approximation signal are
completed after the variation amount has reached a predefined value.

30 14. A program for making a computer function as the measuring device
(200) according to any of Claims 1 through 13 or a computer-readable
recording medium, recording the program.